Blending Online and Onsite Professional Development: Applying What the Research Says for Effective and Sustainable Learning Communities

NATIONAL SCIENCE EDUCATION LEADERSHIP PROFESSIONAL DEVELOPMENT INSTITUTE
MARCH 28, 2012
INDIANAPOLIS, IL
Goals for this PD Institute

- Provide an awareness of selected blended PD research findings in science education and the corporate adult learning environment.

- Provide an awareness of promising practices and potential pitfalls when employing blended PD models and how to help sustain and increase the effectiveness of local professional learning communities.
# Agenda Review

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:15-1:40 pm (25 min)</td>
<td>Welcome &amp; Audience Engagement Activity</td>
</tr>
<tr>
<td>1:40-1:55 pm (15 min)</td>
<td>Description of Blended PD Research</td>
</tr>
<tr>
<td>1:55-2:05 pm (10 min)</td>
<td>Break</td>
</tr>
<tr>
<td>2:05-2:50 pm (45 min)</td>
<td>Blended Research Review and Discussion, Small Group and Share Out</td>
</tr>
<tr>
<td>2:50-3:05 pm (15 min)</td>
<td>Learning Center Overview</td>
</tr>
<tr>
<td>3:05-3:20 pm (15 min)</td>
<td>Jefferson County Public Schools Case</td>
</tr>
<tr>
<td>3:20-3:35 pm (15 min)</td>
<td>Arlington County Public Schools Case</td>
</tr>
<tr>
<td>3:35-4:05 pm (30 min)</td>
<td>Small Group Three Case Study Review</td>
</tr>
<tr>
<td>4:05-4:15 pm (10 min)</td>
<td>Closing thoughts</td>
</tr>
</tbody>
</table>
Facilitator Introductions

- **Al Byers, Ph.D.**
  Assistant Executive Director, e-Learning and Government Partnerships, NSTA

- **Flavio Mendez**
  Sr. Director, NSTA Learning Center, NSTA

- **Lee Ann Nickerson**
  Science Supervisor, Jefferson County Public Schools, Louisville, KY

- **Dat Le, Ph.D., NBCT**
  Science Specialists, K-12 Arlington County Public Schools, Arlington, VA
Introductions and Audience Engagement

- **Create mini-Poster (2-3 min)**
  Describe the PD you currently engage in and/or design for your district (e.g., onsite, online, blended, size of district, expectations for session).
  Put your name and district on poster.

- **Hang on Wall and Stand Next to Poster**
  30 second share out with all when done

- **Blended PD and Speed Dating**
  Rotate around room, place sticky on posters with your name if you’d like more information at break

- **Use “Stickies” to vote on blended PD preferences**
Description of Blended PD Research

AL BYERS
Professional Development: Appears effective when it addresses the following

**Teachers’ Belief System**
- Elicit existing attitudes, experiences, and self-efficacy towards science education and understandings regarding the nature of science

**Subject Matter Knowledge and Pedagogical Content Knowledge**
- Knowledge of science content including representations & metaphors, along with ability to develop and implement inquiry-based lessons to facilitate students’ deeper understanding and active learning

**Understanding How Students Learn**
- Knowledge of formative assessment strategies to help make students’ thinking visible as build upon students’ existing knowledge and prior experiences through social discourse
Blended PD

- Integration between Onsite and Online Learning

- Involves the mix of *pedagogical methods* in combination with various *learning strategies* that involve *technology-mediated solutions* to maximize desired learning outcomes

(Kim, Bonk & Oh, 2008; Smith & Kurthen, 2007; Tang & Bryne, 2007; Vaughan, 2007; Verkroost, Meijerink, Lintsen, & Veen, 2008; Yoon & Lim, 2007)
Blended PD: Models for Delivery

Examples from IBM, Shell, Cisco, and others:

- **Anchor Blend**: Begins with f2f and continues online

- **Bookend Blend**: Meet online for pre-work before initial f2f, follow-up online for continued discussion

- **Field Blend**: Most self-directed, where learners control the pace and time for learning, gaining access to resources and support online when and where they need them.

(Kim, Bonk & Oh, 2008)
Why Blended PD at all? The US PD Landscape

What we know—Local Systemic Change K-8 Evaluation: (75,000 data points -10 yr NSF Longitudinal study)

Teachers of Science with less than 16 hours of PD in last year:

- What % at K-4 level?  76%
- What % at 5-8 level?  57%
- What % at 9-12 level?  32%

Research calls for 50-80 hours/yr to effect a change in teacher practice.

Statistics for Professional Development

• What return-on-investment is typical for face-to-face Professional Development?

  2007 US Dept. of Ed Math/Science Partnerships:
  ▪ Funded 501 projects at $181 Million
  ▪ Average award per project: $337,000
  ▪ Average # teachers impacted/project: ~110 teachers
  ▪ Total Teachers Impacted: 56,000. Total in US: 3 Million

• How many completed an online professional development course in the last year?

  You are not alone! In 2008 over 3.9 million learners in the US took a course online...

  (The Sloan Consortium: Staying the Course: 2008; Project Tomorrow; National Survey on Internet Use; 2008).
## Research in Online and Blended PD

<table>
<thead>
<tr>
<th>Study</th>
<th>PD Program Model</th>
<th>Target Audience/Content Area</th>
<th>Research Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berger et al. (2008)</td>
<td>Blended online and face-to-face</td>
<td>High School Physics (n=16)</td>
<td>Strong online participation linked to student work, discussion tools/techniques Hot Polls, Hot Reports, Smashing Sentences</td>
</tr>
<tr>
<td>Krall et al. (2009)</td>
<td>Self-paced, on-demand, hands-on kits, mentor</td>
<td>Elementary and Middle Science and Inquiry (n = 43)</td>
<td>Significant gains in subject knowledge. Hands-on most valued. Low mentor rating via email -- too critical</td>
</tr>
<tr>
<td>Owston et al. (2008)</td>
<td>Blended online and face-to-face</td>
<td>Middle School Science &amp; Math (n = 33)</td>
<td>Significant gains in teacher perception of inquiry. Weak online participation. Challenges in online component even when provide release time. Reading articles and commenting.</td>
</tr>
</tbody>
</table>
# Research in Online and Blended PD

<table>
<thead>
<tr>
<th>Study</th>
<th>PD Program Model</th>
<th>Audience &amp; Content</th>
<th>Research Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>del Valle et al. (2009)</td>
<td>Self-paced, 12 week module, instructor help</td>
<td>K-12 in-service teachers (n=59)</td>
<td>Mastery-sig. time over longer period, Task-focused-less time in shorter period, not prefer cohort learning. Procrastinator-little time, longer period to complete, prefers cohort learning.</td>
</tr>
<tr>
<td>Lowes et al. (2007)</td>
<td>4-week course, async discourse, readings, group project at end. 6 schools, 3 states</td>
<td>Middle &amp; High (grades 6-10), school-wide reform</td>
<td>Online discourse analysis. Cheerleader-affirming + new information increases online participation. Vary over course to more questioning/challenging at end.</td>
</tr>
<tr>
<td>Whitaker (2007)</td>
<td>On-demand: 3 levels of support. A) web access B) reflection tools, resources, C) 1-on-1 video chat and teaching clip.</td>
<td>pre-K teachers (n=235)</td>
<td>Level of service significantly affects teacher participation. Group C log on more, Group A log on for longer periods of time, but significantly less frequently. Personalized feedback strongly valued. Better to respond quickly with brief message that delayed with longer posts</td>
</tr>
</tbody>
</table>
### Berger et al. (a deeper look at integration)

<table>
<thead>
<tr>
<th>The Tool</th>
<th>Main Design Goals</th>
<th>Ways of Enactment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Your Comments</strong></td>
<td>Enable elaboration of and reflection on ideas that had been previously raised in program</td>
<td>Every few days, program facilitator selected interesting statements from transcripts of teachers’ discourse in f2f meetings or from online postings, posted it to form and invited teachers to relate to it.</td>
</tr>
<tr>
<td><strong>Hot Polls</strong></td>
<td>To summarize previously raised ideas, to encourage reflection on them and promote participation of newcomers</td>
<td>Every 2 weeks facilitator composed a poll based on a central issue discussed in previous f2f meeting. The 3-5 multiple choice answers were often selected from interesting comments from teachers on issue. In forum teachers encouraged to elaborate on their vote.</td>
</tr>
<tr>
<td>(plus) <strong>Hot Reports</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Smashing Sentences</strong></td>
<td>To encourage teachers to be attentive to their students’ reflections</td>
<td>Teachers were asked to sort out and post some of the most meaningful and interesting (“smashing”) sentences from their students’ reflections on specific new PD-supported activities. Teachers became more aware of student’s thinking and shared with colleagues.</td>
</tr>
</tbody>
</table>
Anderson’s Equivalency of Interaction

- Paced, Collaborative Learning
- Student/student
- Asynchronous
- Student/Content
- Synchronous
- Community of Inquiry
- Student/teacher
- Knowledge/Content
- Teacher/content
- Independent Study
- Student/content
- Search & Retrieval
  - Tutorials
  - Simulations
  - Games
  - Virtual Labs
  - (E) Books
  - Structured Learning Resources
  - Peer, Family & Professional Support
Small Group Review:
Blended PD Discussion Guide

ALL
(LARGE GROUP BRIEF SHARE OUT TOO!)
Review of selected blended PD research

*Use discussion guide prompts within the guide for your group and also focus on:*

- Teacher engagement and recognition strategies
- How to address teachers’ individual learning needs and preferences
- The importance of organizational support and incentives
- The need and value for integration between online and onsite strategies for coherence across the school year
Learning Center Overview

FLAVIO MENDEZ
To enhance the personal learning of teachers by providing a suite of tools, resources, and opportunities to support their individual long-term professional growth based on their unique learning needs and preferences and within a professional learning community.
- Over 8,500 PD resources and opportunities
- Practical tools for teachers to organize, personalize & document their growth over time
- A community of teachers to share ideas, questions, experiences
March 2012 Collection: 8,500+ PD Resources and Opportunities Available

Do-It-Yourself Learning

- SciGuides [39]
- Science Objects [87]
- Sci Packs [23]
- Archived Seminars/Podcast [1,200+]

Live Online Seminars & Classes

- Web Seminars [100/yr]
- Short Courses [20+/year]

Books & Articles

- Journal Articles [5,200+]
- NSTA Press Books [280+]
- e-Books [170+]
- e-Chapters [1,000+]

In Person Experiences

- Symposia [6-10/year]
- PD Institutes [6-10/year]
Tools help teachers to organize, personalize and document their growth over time.

- My PD Indexer
- My PD Plan and Portfolio
- My Library
- My Notepad
- My PD Record and Certificates
- My Calendar
- My Community Forums and Profile
- My Help Desk
95,869 Active Users*

18,689 Members (19.5%)
77,180 Non-Members (80.5%)

Active User Growth


789,962 Resources in Libraries

## Community Forums

**(asynchronous)**

<table>
<thead>
<tr>
<th>Forum</th>
<th>Topics</th>
<th>Posts</th>
<th>Last Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary Science</td>
<td>68</td>
<td>1059</td>
<td>by Margaret Hunter Today, 1:06 AM Literary text to Support Science Instruction</td>
</tr>
<tr>
<td>Life Science</td>
<td>89</td>
<td>1419</td>
<td>by Carolyn Mohr Yesterday, 10:23 PM The human appendix: maybe we need that bacteria bag</td>
</tr>
<tr>
<td>Physical Science</td>
<td>55</td>
<td>659</td>
<td>by Tina Harris Today, 12:21 PM Tidal Energy: Researches and Actual Existing Technology</td>
</tr>
<tr>
<td>Earth and Space Science</td>
<td>116</td>
<td>1333</td>
<td>by Carolyn Mohr Fri Jan 06, 2012 1:55 PM How Objects Move In Space</td>
</tr>
<tr>
<td>General Science and Teaching</td>
<td>197</td>
<td>2072</td>
<td>by Tina Harris Today, 11:07 AM Team Project and Projects</td>
</tr>
<tr>
<td>Professional Development</td>
<td>41</td>
<td>478</td>
<td>by Daliz Vasquez Yesterday, 9:37 PM 2012 NSTA Conference-Indy Here We Come!</td>
</tr>
<tr>
<td>Evaluation and Assessment</td>
<td>24</td>
<td>249</td>
<td>by Tina Harris Today, 11:41 AM Implementing Assessments for Culturally and Linguistically Diverse Scholars</td>
</tr>
<tr>
<td>Research in Science Education</td>
<td>16</td>
<td>206</td>
<td>by Carolyn Mohr Yesterday, 10:06 PM Teachers as Researchers</td>
</tr>
<tr>
<td>Chemistry</td>
<td>25</td>
<td>385</td>
<td>by Tina Harris Today, 11:58 AM Low Cost Chemistry Labs</td>
</tr>
<tr>
<td>STEM</td>
<td>10</td>
<td>133</td>
<td>by Patricia McGinnis Fri Jan 06, 2012 3:38 PM Engineering and the Environment</td>
</tr>
</tbody>
</table>
While looking for something else I came across a great Podcast (7 minutes long) which provided insight on being a scientists and using the scientific method. It is a must for a teacher and students to hear. I suggest your listen to this scientist describe his involvement with the scientific method and then share your thoughts on this as well.

Attachments

Podcast: Scientific Method (Podcast)

What an awesome discussion. I have spent time reading, researching and reflecting on this thread. There is part of the discussion that I think I disagree with:

"the scientific method is great for young children who have not developed a strong cognitive ability to think. It the same as you have to learn to walk before you can run. The scientific method is a way for them to gain an understanding of the process. However, as they grow older and have more experiences and make more decisions they should be weaned off this and introduced to scientific inquiry."

I believe all children, even very young children can think scientifically and therefore engage in the inquiry process. I am attaching an article which talks about young children doing science inquiry and a graphic from one of my favorite authors, Karen Worth.

So what do others think?
About Me: I love to read. For fun I work in polymer clay, metal clay, beading, metalsmithing and glass fusing. I am a docent at the San Antonio Zoo. I am now working with teachers as a mentor and I really enjoy that. I love to learn new things as well. I have taught science for 29 years in middle and high school.

Location: San Antonio, Texas
Welcome to Your Personalized Learning Web Space!

Use these learning resources and community to design your own long-term growth plan, collaborate with others, and document your growth!

Alyssa, you've already earned **100 Activity Points**!

You've recently earned:
- NSTA Resource Optimizer
- Add NSTA Resources

You're close to earning:
- Onyx Commenter
- Post 5 more comment/questions

A Message to DCPS Teachers!

Through your participation in this program you have access to a rich collection of science resources in the NSTA Learning Center at no charge to you. Try the advanced search and begin adding resources to your library.

We also encourage you to join others in asynchronous discussion in the community forums, to review and rate resources in your library, make and share collections, and upload your own resources. See all the activities that earn you points and badges!

Check the Web Seminars schedule often and register to attend exciting programs. Don't worry if you can't make it - all programs are archived for your convenience.

Available Assessments

Force and Motion Pre-Assessment
Follow your top colleagues' online activity and contributions

Building a worthwhile learning community provides opportunities for you to recognize those leaders that share their ideas, lessons and resources.

January 2012

<table>
<thead>
<tr>
<th>Pos</th>
<th>Name</th>
<th>Total Activity Points Earned</th>
<th>Recent Donations/Badges</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Lorrie Armfield</td>
<td>14,400</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ronaldo Relador</td>
<td>14,175</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Katherine Jezidija-Kendall</td>
<td>11,215</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>LeRoy Attles</td>
<td>5,970</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Kelly Amendola</td>
<td>4,510</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Duane Little</td>
<td>4,475</td>
<td></td>
</tr>
</tbody>
</table>
State and District Implementations

Over 200 unique cohorts across State/District Partnerships as of March 2012
Accountability system for districts; collect data on usage by individual, manage the content on your districts’ home page, analyze pre/post test scores and other activity data.

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Number Added:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal Article</td>
<td>261</td>
</tr>
<tr>
<td>SciPack</td>
<td>127</td>
</tr>
<tr>
<td>Science Object</td>
<td>83</td>
</tr>
<tr>
<td>Book Chapter</td>
<td>59</td>
</tr>
<tr>
<td>SciGuide</td>
<td>41</td>
</tr>
<tr>
<td>Podcast</td>
<td>8</td>
</tr>
<tr>
<td>Web Seminar Archive</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>585</strong></td>
</tr>
</tbody>
</table>
Jefferson County Public Schools
Louisville, KY

K-12 Resource Teacher
Blended PD Case Study

LEE ANN NICKERSON
K-12 SCIENCE SPECIALIST
## JCPS Demographics

99,775 Students

<table>
<thead>
<tr>
<th>Level</th>
<th># Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>27,459</td>
</tr>
<tr>
<td>Middle</td>
<td>20,679</td>
</tr>
<tr>
<td>Elementary</td>
<td>36,829</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>7,375</td>
</tr>
<tr>
<td>Preschool</td>
<td>4,761</td>
</tr>
<tr>
<td>Special Needs- (self contained)</td>
<td>2,672</td>
</tr>
</tbody>
</table>

- 65% free/reduced lunch
- 10,000 homeless served
- 5,200 ESL; 100 languages

### Racial Composition

- Caucasian: 50.8%
- African American: 36.3%
- Other: 5.4%
- Hispanic/Latino: 4.3%
- Asian: 2.8%
- Other: 0.1%
JCPS Information

Science Resource Teachers

- Elementary
  - 27 Staff Developers
  - 20 Resource Teachers
- Middle:
  - 2 Staff Developers
  - 3 Resource Teachers
- High:
  - 3 Resource Teachers

Schools

<table>
<thead>
<tr>
<th>Schools</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>89</td>
</tr>
<tr>
<td>Middle</td>
<td>23</td>
</tr>
<tr>
<td>High</td>
<td>19</td>
</tr>
<tr>
<td>Special</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>155</td>
</tr>
</tbody>
</table>

6,000 K-12 Teachers

Teacher Profile

<table>
<thead>
<tr>
<th>Teacher’s Holding a Master’s Degree Or Higher</th>
<th>83%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Number of Years Teaching</td>
<td>11.2%</td>
</tr>
</tbody>
</table>
RT/SD Needs Assessment

2010-11 School Year:
- Elementary, Middle RT/SD self-assessment of need for deeper content and common misconception understanding as result of their year-long work with grade level teacher PLCs.

2011-12 School Year:
- High School move to Biology EOC state testing with only 1 of 3 RTs having Bio certification.
- Phi Delta Kappa Curriculum Management Audit.
PD Goals for JCPS RT/SD Content PD

Goals:

- Engage 100% of RT/SDs in at least one SciPack
- Increase content knowledge of all RT/SDs involved as measured by pre/post test
- Prepare RT/SD cadre to begin transition to NGSS
- Utilize the NSTA Learning Center PD Portfolio as an official record of RT/SD knowledge growth
PD Challenges/Considerations

- All RT/SDs in schools 4 days; at Gheens on Friday
- Elementary RT/SDs are math and science – Can you guess which content is their focus?
- Elementary RT/SDs committed to Math Solutions year-long PD
- All RT/SDs committed to providing much district and school-based PD
- Many RT/SDs involved in developing curriculum support documents
- RT/SD interest, comfort level, confidence, timing of district reorganization
PD Options to Maximize Opportunity

NSTA NASA IDEA Grant

JCPS Science Resource Teacher Content

Deepening PD Plan

4 PD Options* including:

- F2F
- Independent online
- PLC time on Fridays with Science Specialist support
- All of above
- Flexible timelines from start to finish

*All options required F2F Orientation PD
4 PD Options

- **Option 1: Independent Online PD – SciPack and Introduction to Standards**
  
  If you are interested in deepening your content, prefer to work on your own time and at your own pace, this option is for you.

- **Option 2: Online/F2F Blended PLC PD – SciPack and K-12 Vertical Standards Progression**
  
  If you prefer to work within a PLC during Friday work time AND you would like to dig a little more deeply into the NGSS Framework, then this option is for you.

- **Option 3: Combo Pack – Options 1 and 2**
  
  If you prefer to work within a PLC during Friday work time AND you would like to dig a little more deeply into the NGSS Framework AND you want to complete additional SciPacks on your own, then this option is for you.

- **Option 4: Option 1, 2, or 3 Delayed Start Time – SciPack and K-12 Vertical Standards Progression**
  
  If option 1, 2, or 3 sounds interesting to you, but your work load is currently too daunting to add this now, then this option is for you.
RT/SD PD Progress Report

- Orientation PD F2F – February 10th
- PD Options selected:
  - Option 1 (Online Independent) – 15
  - Option 2 (Online/F2F Blended PLC) – 0
  - Option 3 (Combo of #1 and 2) – 27
  - Option 4 (Delayed start) – 10
- 5 PLCs are established and in progress
- PD Portfolio development is slow
- 2 Friday PLC times thus far
Next Steps

- Provide more incentive to PLCs
- Offer PD Portfolio development work time on a Friday
- Schedule 1st DRAFT NGSS feedback work session
- ID and share articles, etc. on NSTA Learning Center
Questions
Arlington Public Schools
K-12 Science Professional Development
(A Blended Model Approach)

Dat Le, Ph.D., NBCT
Science Specialist, K-12
Arlington Public Schools
ARLINGTON PUBLIC SCHOOLS PROFILE

- **22,240 Students (current year)**
- **22 Elementary; 5 Middle; 4 Secondary/High; 6 Programs**
- **52% ethnically diverse student body, coming from 126 different nations and speak 98 languages**
- **32% students with subsidized meals**
- **For the fifth year in the row, all APS high schools are ranked top 1% in the nation by the Washington Post**
- **Average APS teacher has 12 years experience; 75% has at least a master’s degree**
APS Teacher Profile

- 2,435 Classroom Teachers
- Approximately 120 secondary science teachers; 1615 elementary classroom teachers
- Less than 1% elementary classroom teachers have a science degree
- Average APS teacher has 12 years experience; 75% has at least a master’s degree
- However, more than 90% of these master’s degrees are in education, not science content.
Problem: Teachers are often provided professional development in pedagogy, but not in science content area.

Goal: APS will provide science teachers with content area professional learning opportunities to help all students succeed.
The Need for Science Content Area Professional Learning

**Elementary Science Teachers**
- Most are classroom generalists with little or no science content background.
- All are expected to teach life and physical sciences in K-5.

**Secondary Science Teachers**
- All secondary science teachers are certified in science and have a specific science background (biology, chemistry, physics or earth science).
- During their teaching career, over a third of science teachers will teach science courses that they are either a) not endorsed in or b) have not taught the class before. For example, a biology teacher will teach chemistry or Earth science.
APS Blended Professional Learning Opportunities

1. **Article Discussions via Blackboard**
   - Selected articles are shared via posting on Blackboard.
   - Teachers discuss articles, provide reflections and share ideas during monthly countywide meetings.

2. **NSTA Learning Center**
   - Professional Development to increase science content area knowledge are provided during the summer or school year using the NSTA Learning Center.
   - Teachers go through orientation and start with selected SciPack based on the results of their PD Indexer.
   - Teachers complete SciPacks and other activities on their own free time.
   - Follow-up to share, ask questions and receive credit.
PD Learning Incentives
Blended Model Article Discussions

Article Discussions via Blackboard
- Teachers select science articles and read beforehand.
- Articles support content knowledge area.
- Selected articles are shared online with thought provoking questions and ideas.
- Teachers share and discuss articles in person during monthly countywide meetings.

Benefits
- Counts as countywide meeting day
- Recertification Points
- Can count as Professional Development Plan
PD Learning Incentives
NSTA Learning Center

Current Benefits (2010-2012)

- Sub day to attend NSTA Learning Center Orientation Workshop
- Free lunch
- Recertification points
- A year subscription to NSTA Learning Center (NASA Grant)
- Opportunity for all expense paid trip to NSTA Conference (NASA Grant)
PD Learning Incentives
NSTA Learning Center

Future Benefits (2012- beyond)

Summer Learning Day
- Hourly stipend
- Free Lunch
- Recertification points
- A year subscription to NSTA Learning Center

Professional Learning Day
- Sub day to work on SciPack
- Recertification points
- A year subscription to NSTA Learning Center
Challenges

- **Cost** - APS is committed to investing in effective, high quality science teachers. Financial support for future years is critical. APS budgeted limited slots.

- **Time** - Challenge for teachers due to time missed from class and personal time at home.
APS Investment:
Professional Learning in the Science Content Area

- High Quality Instruction
- Teacher Retention
- Scheduling Flexibility for Students
- Wide Variety of Science Course Offerings

Student Success
Questions
Small Group Review: Blended PD Case Scenarios

ALL
(LARGE GROUP BRIEF SHARE OUT TOO!)
Review of selected blended PD research

*Use discussion guide prompts within the guide for your group and also focus on:*

- Teacher engagement and recognition strategies
- How to address teachers’ individual learning needs and preferences
- The importance of organizational support and incentives
- The need and value for integration between online and onsite strategies for coherence across the school year
Closing Thoughts
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- Integration in key for continuous year-long learning
- Recognize online efforts when face-to-face and vice versa
It’s about getting the mix right...

- Badges and local leader boards help integrate online and onsite as single effort for your PLC’s.

- Mix various interaction strategies:
  - Case Study/Debate
  - Presentations/Products
  - Role Playing Scenarios
  - Problem-based Projects/Inquiries
  - Panel Discussions/Hot Polls
  - Smashing Sentences
  - Data Analysis/Visualizations
Catch the Wave: Blended Teacher Learning

THANK YOU